

Claims

1. Metal fixing material bushing for igniters of airbags or belt tensioning pulleys, in particular glass to metal bushing;
- 1.1 with at least one metal pin which is arranged in a slot in the base plate in a fixing material, whereby the base plate has a front and a rear characterized by the following features:
 - 1.2 the base plate is formed by one element, whereby the base geometry describing the slot is produced by at least one separation process;
 - 1.3 resources are provided between the front and rear of the base plate for prevention of a relative motion of fixing material in the direction of the rear across from the inner circumference of the slot.
2. Metal fixing material bushing according to Claim 1, characterized by the fact that the contour describing the final geometry is produced by the separation process.
3. Metal fixing material bushing according to Claim 1 or 2 whose resources are an integral component of the base plate or form a structural unit with them.
4. Metal fixing material bushing according to one of Claims 1 through 3, characterized by the fact that the metal fixing material bushing comprises at least two metal pins in parallel arrangement to each other.
5. Metal fixing material bushing according to one of Claims 1 through 4, characterized by the fact that the metal pin is firmly connected with a fixing material yielding a fixing material plug.

6. Metal fixing material bushing according to Claim 5, characterized by the fact that the metal pin is sealed with the fixing material.
7. Metal fixing material bushing according to one of Claims 1 through 6, characterized by the fact that a glass plug formed from molten glass or a high-performance polymer is used as fixing material.
8. Metal fixing material bushing according to one of Claims 1 through 7, characterized by the fact that the resources for prevention of a relative motion of fixing material in the direction of the rear across from the inner circumference of the slot comprise at least one undercut arranged between the rear and the front viewed from the rear on the inner circumference of the slot in the base plate, whereby the front is free from such an undercut.
9. Metal fixing material bushing according to Claim 8, characterized by the fact that the undercut is formed by at least one projection.
10. Metal fixing material bushing according to Claim 9, characterized by the following features:
 - 10.1 the slot is characterized by two sub-areas – a first sub-area which extends from the rear toward the front and a second sub-area, which extends from the front toward the rear;
 - 10.2 the projection is formed by the second sub-area, which is characterized by lesser inner dimensions than the first sub-area;
 - 10.3 the first and second sub-areas have an unchanging geometry with constant inner dimensions over their length.

11. Metal fixing material bushing according to Claim 9, characterized by the following features:
 - 11.1 the slot is characterized by two sub-areas – a first sub-area which extends from the rear toward the front and a second sub-area, which extends from the front toward the rear;
 - 11.2 the projection is formed by the second sub-area, which is characterized by lesser inner dimensions than the first sub-area;
 - 11.3 the first and/or second sub-areas have a variable geometry and/or different inner dimensions over their length.
12. Metal fixing material bushing according to Claim 11, characterized by the fact that the first sub-area is characterized by a reduction of the dimensions starting from the front to the second sub-area.
13. Metal fixing material bushing according to Claim 11 or 12, characterized by the fact that the slot exhibits a circular cross section and at least the first sub-area, preferably also the second sub-area is tapered.
14. Metal fixing material bushing according to one of Claims 8 or 9, characterized by the fact that undercut is centrally arranged.
15. Metal fixing material bushing according to one of Claims 8, 9 or 14, characterized by the following features:
 - 15.1 with an undercut in both directions;
 - 15.2 the slot is characterized by three sub-areas – a first sub-area, which extends from the rear toward the front, a second sub-area adjacent to the first sub-area and a third sub-area, which extends from the front to the rear;

- 15.3 the second sub-area is characterized by lesser dimensions of the slot than the first and third sub-areas.
16. Metal fixing material bushing according to one of Claims 8, 9 or 14, characterized by the following features:
 - 16.1 with an undercut in both directions;
 - 16.2 the slot is characterized by three sub-areas – a first sub-area, which extends from the rear toward the front, a second sub-area adjacent to the first sub-area and a third sub-area, which extends from the front to the rear;
 - 16.3 the second sub-area is characterized by greater dimensions of the slot than the first and third sub-areas.
17. Metal fixing material bushing according to one of Claims 15 or 16, characterized by the fact that the first and third sub-areas are characterized by identical cross section dimensions.
18. Metal fixing material bushing according to one of Claims 9 through 17, characterized by the fact that a number of projections are provided arranged in circumferential direction distanced to each other on a common length between the front and the rear.
19. Metal fixing material bushing according to one of Claims 1 through 18, characterized by the fact that the slot exhibits a circular cross section.
20. Metal fixing material bushing according to one of Claims 1 through 18, characterized by the fact the slot exhibits a randomly selectable cross section.

21. Metal fixing material bushing according to one of Claims 1 through 20, characterized by the fact that the base plate is formed by a stamped metal part.
22. Metal fixing material bushing according to Claim 21, characterized by the fact that the stamped metal part is polished.
23. Metal fixing material bushing according to one of Claims 1 through 22, characterized by the fact that the resources for prevention of a relative motion of fixing material in the direction of the rear across from the inner circumference of the slot comprise at least one positive connection between fixing material plug and a part of the slot.
24. Metal fixing material bushing according to one of Claims 1 through 8, characterized by the fact that the resources comprise an element inserted in the slot and the inner circumference of the slot and/or the outer circumference of the element exhibits a roughness of $\geq 10 \mu\text{m}$.
25. Metal fixing material bushing according to one of Claims 1 through 24, characterized by the fact that on the metal pin resources are provided for the prevention of a relative motion of the pin opposite the fixing material.
26. Metal fixing material bushing according to Claim 15, characterized by the fact that the resources for prevention of a relative motion of the pin opposite the fixing material comprise at least one projection in radial direction on the pin.
27. Metal fixing material bushing according to Claim 26, characterized by the fact that the projection is an integral component of the pin.

28. Metal fixing material bushing according to Claim 26, characterized by the fact that the projection is formed by an element connected to the pin.
29. Metal fixing material bushing according to one of Claims 26 through 28, characterized by the fact that the resources for the prevention of a relative motion of the pin opposite the fixing material comprise a number of projections adjoined in axial direction and in radial direction on the pin.
30. Metal fixing material bushing according to one of Claims 1 through 29, characterized by the fact that at least two metal pins are provided.
31. Metal fixing material bushing according to Claim 30, characterized by the fact that the two or more metal pins are in parallel arrangement to each other.
32. Metal fixing material bushing according to one of Claims 30 to 31, characterized by the fact that the second metal pin is grounded to the rear of the base plate.
33. Metal fixing material bushing according to one of Claims 1 through 29, characterized by the fact that a metal pin is provided, which is arranged in a slot in the base plate in a fixing material, as well as a socket of the base plate which is grounded.
34. Method for manufacturing a base plate of a metal bushing according to one of Claims 1 through 33,
 - 34.1 in which from one part, in particular a sheet metal part, of predefined thickness the final contour describing the outer geometry is gained by means of a separation process;

- 34.2 in which to form the slot for at least one metal pin the base geometry describing the starting form of the slot is gained by means of punching out of the part, in particular of the sheet metal part.
35. Method according to Claim 34, characterized by the fact that the final contour describing the outer geometry gained by the separation process and the base geometry describing the starting form of the slot are produced in one processing step in the form of punching out with a tool.
36. Method according to one of Claims 34 or 35, characterized by the fact that the undercuts in the slots are formed by deformation of the slot.
37. Method according to Claim 36, characterized by the fact that the deformation is achieved by means of at least one stamping operation.
38. Method according to one of Claims 36 or 37, characterized by the fact that the stamping and punching operations are performed from the same side on the base plate.
39. Method according to one of Claims 36 or 37, characterized by the fact that the stamping and punching operations are performed from at different sides on the base plate.
40. Method according to one of Claims 36 through 39, characterized by the fact that the stamping and punching operations are performed on both sides on the base plate.

41. Method according to Claim 40, characterized by the fact that either tools with the same parameters or the same tools are used for stamping and punching.
42. Method according to one of Claims 34 through 41, characterized by the fact that prior to the punching out of the slot in the area of the slot to be produced on the sheet metal part a stamping operation is performed.
43. Method according to one of Claims 34 through 42, characterized by the fact that the socket of the base plate is obtained after punching out by means of deep drawing.